

Borehole

51-00-06

Log Event A

Borehole Information

Farm : <u>TX</u>	Tank : <u>TX</u>	Site Number : <u>299-W15-69</u>
N-Coord : <u>41,590</u>	W-Coord : <u>75,903</u>	TOC Elevation : <u>671.14</u>
Water Level, ft :	Date Drilled : <u>2/28/1949</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.313</u>	ID, in. : <u>8</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>150</u>	

Borehole Notes:

This borehole was drilled in February 1949. The borehole was extended to a depth of 150 ft with 8-in. casing. The casing was subsequently perforated between depths of 40 and 100 ft. There is no indication that the bottom of the borehole was cemented, or that grout was placed in the borehole.

The casing thickness is presumed to be 0.322 in., on the basis of published thickness for schedule-40, 8-in. steel casing.

The top of the casing is the starting depth for the logs. The casing collar is about even with the ground surface.

Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1995</u>	Calibration Reference : <u>GJPO-HAN-3</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>1/23/1996</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>146.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>76.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>1/24/1996</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>77.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>29.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>1/25/1996</u>	Logging Engineer: <u>Bob Spatz</u>
Start Depth, ft.: <u>30.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>0.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole
Log Data Report

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Borehole

51-00-06

Log Event A

Analysis Information

Analyst : H.D. Mac Lean

Data Processing Reference : P-GJPO-1787

Analysis Date : 9/17/1996

Analysis Notes :

Three logging runs were required to complete the SGLS log of this borehole. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and system efficiency, confirming the SGLS system was operating within specifications. The energy calibration and peak-shape calibration from these verification spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.322-in.-thick steel casing were not available during analysis. A correction factor of 0.330 was applied, which will cause the calculated concentration to be slightly less than the actual concentration.

Depth overlaps, where data were collected by separate logging runs at the same depth, occurred in this borehole between depths of 29 and 30 ft and between depths of 76 and 77 ft. The calculated concentrations of the natural radionuclides (KUT) and of Cs-137 (in intervals where this radionuclide occurs) using the separate data sets at the overlapping depth points were within the statistical uncertainty of the measurements, indicating very good repeatability of the radionuclide concentration measurements.

Cs-137 was the only man-made radionuclide identified in this borehole. The shallowest zone of Cs-137 extends from the ground surface to a depth of 2 ft. The maximum Cs-137 in this zone was about 23 pCi/g, which was measured at a depth of 1 ft below the surface. Minor Cs-137 concentrations of less than 1 pCi/g were noted intermittently throughout the length of the borehole.

There is a steplike change in the K-40 and Th-234 concentrations at a depth of about 49 ft that indicates a lithologic change at that depth. A second change in lithology is indicated by a slight increase in the Th-234 background concentration at a depth of 95 ft. The abrupt drop in KUT concentrations at 110 ft probably indicates a change to a more calcareous lithology at this depth.

Additional information and interpretations of log data are included in the TSDR for tank TX-103.

Log Plot Notes:

Separate log plots show the man-made radionuclides (Cs-137, Co-60, and Eu-154) and the naturally occurring radionuclides (KUT). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Tank Farm gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.